

problems were associated with greater financial exploitation vulnerability, and this relationship was not driven by worse cognition. These results suggest that even low amounts of drinking and alcohol-related problems may be associated with cognition and financial exploitation vulnerability in cognitively unimpaired older adults. This study also corroborates the use of the SMAST over the CAGE in older adult populations that may be more sensitive to cognitive changes.

**Categories:** Addiction/Dependence

**Keyword 1:** alcohol

**Keyword 2:** computerized neuropsychological testing

**Keyword 3:** social cognition

**Correspondence:** Aaron C Lim, Department of Family Medicine, Keck School of Medicine of USC, Alhambra, CA, USA, aaron.lim@med.usc.edu.

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## 2 Pilot Study of a Cognitive Enhancement Intervention for Substance Abuse Recovery

Alicia Ito Ford, Riley Smith  
Oklahoma State University-Center for Health Sciences, Tulsa, OK, USA

**Objective:** This was a pilot study testing a cognitive enhancement program to improve rate of cognitive recovery in early substance abuse treatment. It is hypothesized that if patients were able to accelerate the rate of cognitive improvement, they may be able to better engage in substance abuse treatment and potentially have better long-term outcomes.

**Participants and Methods:** Participants were 47 adults newly admitted to a residential substance abuse treatment facility (74.5% male, 76.6% white, mean age=34.5 years, education=12+ years). All were post-detox. All were being treated for opioid abuse, with the majority in treatment for polysubstance abuse. Participants were randomly assigned to either the intervention group (BrainHQ research cognitive training program) or active control group (inert computer games) and completed 3-4 training sessions per week for a minimum of 3 weeks. NIH Toolbox cognition battery was administered at baseline and endpoint.

**Results:** Regardless of study group, most participants had a significant improvement in cognitive performance across most subtests and composite scores of the NIH Toolbox cognition battery. The RAVLT and Oral Symbol Digit subtests had the greatest change ( $p < .001$ ) for both groups, as well as a significant improvement ( $p = .002$ ) in Cognitive Function Composite Score for both groups. The only difference between the control and intervention group was on the Pattern Comparison subtest, with the intervention group scoring significantly higher at endpoint ( $p = .004$ ).

**Conclusions:** Although substance abuse is known to cause injury to the brain that may not be fully repaired by sobriety, cognitive recovery was significant in this group of patients during early inpatient treatment for opioid abuse. Although it has yielded significant effect in other patient populations, the BrainHQ program did not show a significant enhancement in cognitive recovery, compared to the active control group, in this pilot study of patients in treatment for opioid abuse. This study was limited by a small sample size and potential future variations should be considered, such as changes to intervention intensity and specific intervention exercises.

**Categories:** Addiction/Dependence

**Keyword 1:** addiction or dependence

**Keyword 2:** cognitive rehabilitation

**Correspondence:** Alicia Ford, Oklahoma State University Center for Health Sciences, alicia.ford@okstate.edu

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## 3 Neuropsychiatric Change and Childhood Adversity Levels in an Opioid Treatment Population

Alicia Ito Ford  
Oklahoma State University-Center for Health Sciences, Tulsa, OK, USA

**Objective:** Early life adversity is strongly correlated with a number of negative health outcomes, with some of the highest risks are related to later illicit drug use and substance use disorders (SUDs). Specifically, it has been found that an ACEs score of  $>4$  confers a 7-10-fold risk of substance abuse. Subsequent research has identified a number of neurobiological effects of childhood trauma, including structural and

functional disruptions of the LHPA axis, the brain's primary stress-response system. It has been hypothesized that various trauma-induced neurobiological changes may lead to later physical health, mental health, and psychosocial problems in persons with early life adversity. One area that such changes might affect is a person's ability to stop abusing substances, with factors such as trauma-related mood, self-efficacy, or cognitive functioning as considerations in early treatment success. This study followed a group of participants in a residential substance abuse treatment program across their first month of abstinence, to assess natural change in cognitive performance as well as potential effect of early life adversity on changes in neuropsychiatric outcomes.

**Participants and Methods:** Participants were 37 adults (mean age=33.9 years, SD=6.7) who had completed detoxification and were first assessed during their first week of residential treatment. Follow-up assessment was completed 4 weeks later. Participants were primarily male (62%) and white (62%). They were all in treatment for opioid abuse, with a majority of participants reporting a history of polysubstance abuse. To measure adverse and protective factors, participants completed the Adverse Childhood Experiences scale and Protective And Compensatory Experiences Scale at baseline. Participants also completed the NIH Toolbox cognition battery and a set of self-report measures of cognitive functioning, mood, anxiety, and self-efficacy at baseline and follow up.

**Results:** Results of paired samples t-test comparison between baseline and follow-up testing found a significant improvement in self-reported depression symptoms, anxiety symptoms, and self-efficacy (all  $p < .001$ ). Interestingly, participants overall reported an increase in cognitive problems between baseline and retest, even though on objective cognitive testing (NIH Toolbox cognition battery) there was significant improvement in cognitive performance. Participants generally had a high level of childhood adversity (mean ACE score of 4.5), with an average level of childhood compensatory experiences. Considering the specific effect for childhood adversity, ACE score was found to be predictive in amount of anxiety and self-reported cognitive change but not for objective cognitive performance or change in other factors.

**Conclusions:** Consistent with previous research, these patients had a high level of past

trauma, which interacted with a number of other neuropsychiatric measures and support the importance of assessing for trauma history and integrating trauma-focused treatment into substance abuse treatment programs.

**Categories:** Addiction/Dependence

**Keyword 1:** addiction or dependence

**Keyword 2:** cognitive functioning

**Correspondence:** Alicia Ford, Oklahoma State University Center for Health Sciences, alicia.ford@okstate.edu

#### 4 Methamphetamine, cannabis, HIV, and their combined effects on neurocognition

Jeffrey M Rogers<sup>1</sup>, Igor Grant<sup>2</sup>, Maria Cecilia Marcondes<sup>3</sup>, Erin E Morgan<sup>2</sup>, Mariana Cherner<sup>2</sup>, Ronald J Ellis<sup>2</sup>, Scott L Letendre<sup>2</sup>, Robert K Heaton<sup>2</sup>, Jennifer E Iudicello<sup>2</sup>

<sup>1</sup>San Diego State University/University of California San Diego Joint Doctoral Program in Clinical Psychology, San Diego, CA, USA.

<sup>2</sup>Department of Psychiatry, University of California San Diego, San Diego, CA, USA.

<sup>3</sup>San Diego Biomedical Research Institute, San Diego, CA, USA

**Objective:** Methamphetamine and cannabis are two widely used substances with possibly opposing effects on aspects of central nervous system functioning. Use of these substances is prevalent among people with HIV (PWH), though their combined effects on HIV-associated neurocognitive impairment (NCI) are unknown. Adverse effects of methamphetamine use on cognition are well documented. Cannabis may disturb cognition acutely, though its longer-term effects in PWH are not well understood. Our prior analysis of people without HIV (PWoH) found that cotemporaneous cannabis use was associated with better neurocognitive outcomes among methamphetamine users. The aim of this study was to assess how lifetime cannabis and methamphetamine use disorder relate to neurocognitive outcomes in PWH.

**Participants and Methods:** HIV-positive participants (n=472) were on average 45.6±11.5 years of age, male (86.4%), White (60.6%), and educated 13.9±2.5 years. Most participants were on ART (81.9%) and virally suppressed